Virginia WILDLIFE

APRIL
1951

PRICE 15 CENTS

Volume XII
Number 4

Photo by Kesteloo

Virginia Sportsman

Virginia WILDLIFE

Published by VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES, Richmond 13, Virginia

A Monthly Magazine for Higher Standards of Outdoor Recreation Through Wildlife Conservation

COMMONWEALTH OF VIRGINIA

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VOLUME XII APRIL, 1951 NUMBER 4

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Cover Photo

April is nesting time in the Old Dominion. Here a house wren takes advantage of a hollow gourd provided by a bird lover, and discovers a way to beat the housing shortage!

Photo by Roger Tory Peterson from National Audubon Society

VIRGINIA WILDLIFE gratefully receives for consideration all news items, articles, photographs, sketches and other materials which deal with the use, management and study of Virginia's interrelated, renewable natural resources:

WILDLIFE

SOILS — *CONSERVE* — WATER

FORESTS

Since wildlife is a beneficiary of the work done by State and Federal land-use agencies in Virginia, editorial policy provides for recognition of their accomplishments and solicitation of their contributions. Credit is given on material published. Permission to reprint is granted provided proper credit is given.

SUBSCRIPTIONS: One Year, $1.00; two years, $1.50; three years, $2.00. Remittances by check or money order to be made payable to the Treasurer of Virginia. Local game wardens will accept subscriptions or they may be forwarded direct to Commission of Game and Inland Fisheries, 7 North Second Street, P. O. Box 1642, Richmond 13, Virginia.

Entered as second class mail matter November 10, 1947, at the Post Office at Richmond, Virginia, under the Act of August 24, 1912.

Farming for Wildlife

APRIL, IN VIRGINIA, marks the real beginning of spring. The soil is warm, the spring rains have come with their precious moisture, the sun is brighter and longer-lasting, and everything seems right for a new life. The farmer who knows his land will lose no time in getting his crops into the ground, for he realizes that if he is to have a harvest in the fall he must get an early start in the spring. He also knows—particularly if he likes wildlife and wants to have small game about his premises—that spring is the time to begin farming for wildlife.

No landowner needs to be told that if he wants to produce more cattle, he must provide additional range and feed for his stock. Similarly, if he wants more game, he must produce more food and cover for wildlife. It's that simple.

April is the ideal month to provide for game, be it a field border of bicolor lespedeza along a woodland, a feed patch of combine milo, millet, game bird mixture in some corner turnabout, or a row or two of corn or cowpeas where the game can get to it. This is a period when man can—and should—assist nature in producing a shootable surplus of wildlife through the establishment of more and more suitable cover areas for wildlife.

This annual appeal to the landowners and sportsmen to provide for wildlife in the spring so that a surplus crop may be hunted in the fall is meeting with encouraging success. Much is being done for game through the Commission's habitat restoration program, where seeds and plants particularly suited for wildlife are being distributed to the farmers through the Soil Conservation Districts, and in some cases directly to the landowner.

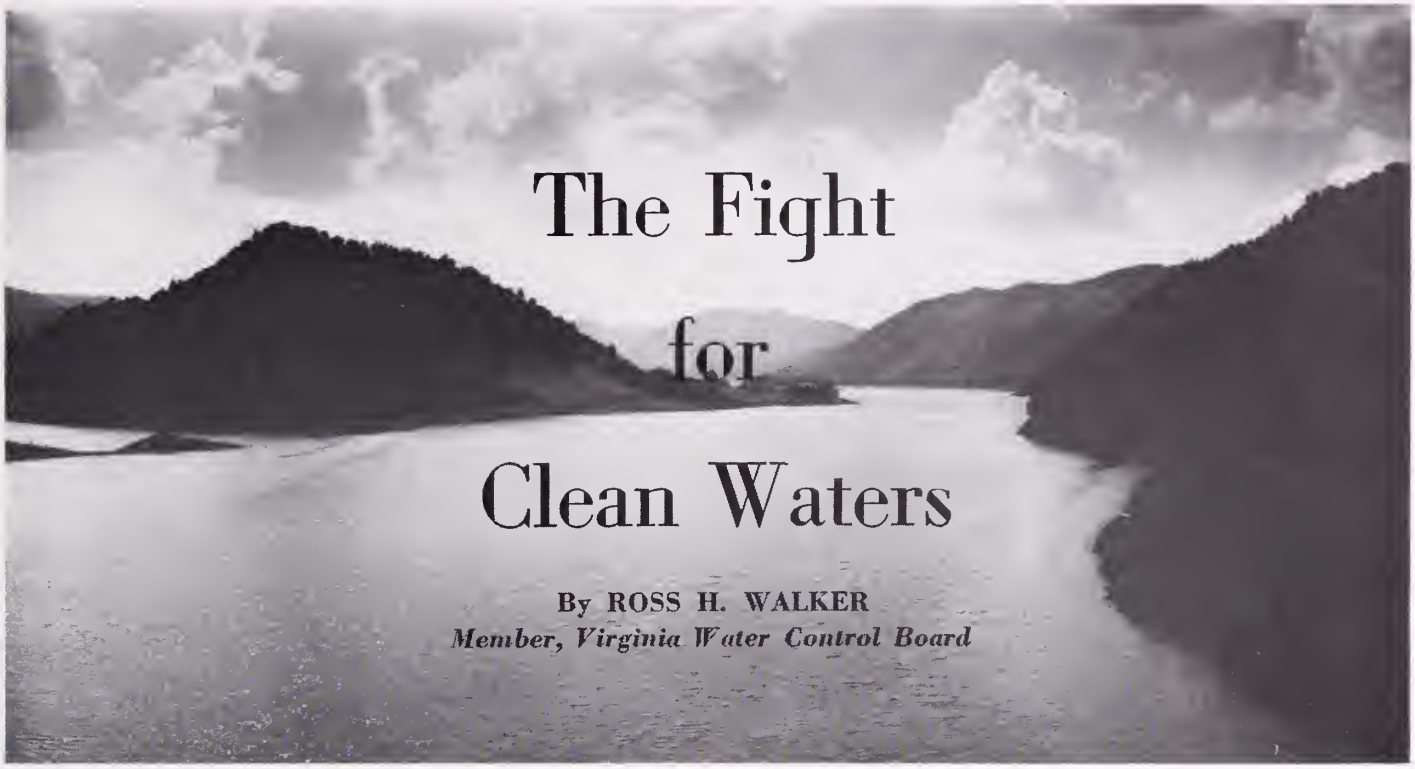
In one county—Halifax—no fewer than 75,000 bicolor plants are being distributed to its citizens, thanks to the cooperation of the Halifax Sportsmen's Club. In addition to the bicolor plants, 150 pounds of bicolor seed, 300 pounds of serecia seed, and over 400 pounds of annual seed mixtures composed of peas, millet, beans, and milo, will also be distributed. The tremendous interest displayed by the sportsmen, the landowners, and the average citizen of this county in this habitat improvement program is well illustrated by a recent issue of the *Record Advertiser*, the county paper, which featured a front page article on the planting program in Halifax. Other counties are following suit.

Farming for wildlife is a big program. Much is being done for game—but the job ahead is still great. Only by redoubling our efforts in this direction can we possibly safeguard the future of our wildlife.

Of interest to the Commission's game program have been the many editorials that have recently appeared, favoring the restoration movement. Here is one from the *Richmond News Leader:*

"The most encouraging news for Virginia sportsmen in a good many years turned up this week in a modest release from the State Game Commission. In the past two years, 3,275 Virginia farmers have joined in a habitat improvement project which already has benefited upwards of a million acres—more than a fourth of all planted crop land in the state. The program is simplicity itself: the Game Commission furnishes, free of charge, seeds and slips of lespedeza; the farmer agrees, for his part, to see that the lespedeza is planted properly and kept under cultivation. The Commission gains a lasting benefit for wildlife; the farmer gains from erosion control and the presence of added game.

"It is in this relatively unspectacular labor that the future of Virginia's upland game must rest. As the number of hunters increases each year, the pressure on game birds and animals becomes steadily greater. When landowners 'farm clean,' stripping away all cover and food crops and destroying the natural habitat of generations, wildlife simply disappears. Many areas of Virginia rarely see quail or turkeys or rabbits today; in other areas, hunting is spotty at best. But give game the habitat on which it depends for survival, and wildlife will take care of itself. Such habitat cannot be created overnight—the forest primeval is gone for good—but an intelligent and hopeful start is being made."



The Fight for Clean Waters

By ROSS H. WALKER
Member, Virginia Water Control Board

TVA Photo

Waters as clear and clean as this mountain lake are the right of every Virginian.

THE FIGHT FOR clean waters in Virginia and in many other states is one that is still in its infancy. Pollution has been with us a very long time and it is wishful thinking to hope that we can have our polluted waters clean again without real cost and some major sacrifices.

Wildlife enthusiasts are fully acquainted with the damage that has been done and is continuing to be done to our fish and game resources as a result of untreated sewage and industrial wastes. The unhappy fact that in many instances these wastes have become a health menace further bears out the seriousness of the problem.

The big question is: what progress is being made to improve the situation?

I have no technical training in the art of stream sanitation, and I will not attempt to discuss the subject from a technical standpoint. My interest in the problem has arisen from my desire to make the out-of-doors more attractive. My experience in the practical problems involved has come from my service as one of the five members of the Virginia State Water Control Board from its inception in 1946, and also from my service as one of the three commissioners from Virginia on the Ohio River Valley Water Sanitation Commission from its creation in 1948.

Article adapted from a paper presented before the October 1950 meeting of the Southeastern Association of Game and Fish Commissioners.

Public opinion—so important in a matter of this kind—is, I think, rapidly coming to our aid. As conditions have grown worse, more people have recognized its seriousness and, as some industries and municipalities have solved their problems of waste treatment, those areas that have been improved have become less tolerant of others who have not made similar efforts.

Our experience in Virginia is that for too many years the general public was not alarmed and many industries tried to meet the problem with legal talent rather than engineering talent. Our efforts to improve the situation prior to the enactment of the State Water Control Law in 1946 were without proper legal authority and were quite ineffective. Prior to 1944 it looked rather hopeless to many of us who were conscious of the seriousness of the condition then becoming increasingly more alarming.

Our legislative record in Virginia however is good since 1944, when a joint Resolution of the General Assembly directed the Advisory Legislative Council to study the problem and to recommend legislation. I had the pleasure of serving on a committee created to make this study and was gratified to see what I believe to be a good law passed by an overwhelming majority of both branches of the next General Assembly in 1946. At that time there was little objection from municipal pollutors, and industry had

Photo by Kesteloo

Clean waters are sportsmen's waters. Fish can't live in waters heavily polluted with industrial and municipal wastes.

about reached the conclusion that legislation was inevitable and that they could only hope to see that the law was reasonable. There was no real effort to change the law at the 1948 General Assembly, but at the 1950 session there were introduced, at the instigation of municipalities, numerous bills that would have caused the law to be totally ineffective in bringing about abatement of sewage pollution. Representatives of industry were opposed to such changes in the law, as were many conservationists, and all of these bills were killed in committee.

Our Water Control Law has three main objectives:

1. To keep free of pollution waters that now are clean.
2. To prevent further pollution.
3. To cause abatement of pollution existing on the effective date, July 1, 1946.

The first two objectives are mandatory, and our Board only has discretion in respect to the determination of the extent of treatment required by new sources of waste from new industries or sewage outfalls as well as extensions of existing sources of untreated wastes. I think it is safe to say that there has been no significant increase in untreated industrial wastes or in sewage pollution except as a result of the natural growth of cities and other communities.

The other objective—abatement—is left to the discretion of the Board as to the time required and the extent to which it may be accomplished.

We have an unusual set-up in our Water Control Board in that each of the five members are business men without technical training and, except for the Chairman, The Honorable E. Blackburn Moore, who is Speaker of the House of Delegates, no one of us has ever held an elective or other appointive office in State Government. The reasoning behind this feature of the law was that we might approach the subject in a business-like manner, and that what we would or would not do would not be influenced by the need to retain any position on which we would be dependent. I think it has worked out pretty well so far. We have a relatively small staff of trained personnel consisting of our Executive Secretary, engineers, chemists, and office personnel—a total of eight persons—and we are operating on a budget of approximately $42,000 per year. We rely on this staff for technical advice, and our administration of the law is by our determination of general policies and our decisions on each problem on its individual merits.

In the matter of abatement, we have accomplished a good deal, and there is yet much more to be done. While we have the power to issue orders to require abatement, we have actually issued only one such order. Thus far our efforts and what we have accomplished have largely been by conference with representatives of municipalities and with industries and by agreements reached on a cooperative basis. We are however approaching a point from which I anticipate the probability of more such orders when persuasive efforts have not been effective.

It is a slow process and a difficult one, but it is well under way in Virginia, and we can at least see some favorable results.

Between 1908 and 1946 there were 47 sewage treatment plants built in Virginia. Twenty-five of these were built during the ten year period from 1936 to 1946. In the four years since the Water Control Law was enacted, 23 such plants have been completed. During the year 1950, there are 23 more plants in the "plans completed" or "construction started" stage with 29 more potential plants under survey.

There are very few important sources of untreated sewage wastes wherein some progress toward abatement has not been made. It is the purpose of the Board to follow this progress to see that there are no undue delays in the several steps necessary from preliminary surveys to actual construction.

Abatement of industrial waste pollution has likewise progressed from a very limited effort prior to 1946 to a point where considerable improvement has occurred. One important stream that had been badly damaged has been brought back to a satisfactory condition. As an illustration of what is being done, six important industries have, since 1946, reduced their wastes from a population equivalent of 807,600 persons to a population equivalent of 351,200 persons. There are today few instances of important industrial pollution where definite progress is not under way.

While all of this is encouraging and shows that we are moving in the right direction, it does not mean that we have solved our problems, and hence we cannot hope for a satisfactory condition of our streams in the near future. There is much remaining work to be done, and it will take several years.

Photos by Kesteloo

Top: Industrial wastes are a target of the Water Control Board whenever they enter Virginia streams. Bottom: Municipal sewage disposal plants like this are important factors in pollution abatement.

Our progress with industrial problems has generally been more satisfactory than with municipal problems because industries can and frequently do tell us frankly what they can do, whereas there is always the problem of changing administrations in our cities and towns, and they cannot commit themselves with such freedom.

On numerous occasions when representatives of municipalities have come before us, they have expressed themselves as being entirely sympathetic with the objectives of the law but feel that their communities cannot afford to provide for treatment needed. They are confronted with the necessity of financing schools and every other type of service, and they feel that sewage treatment must wait until a more convenient time. The trouble is that the citizens of these municipalities are not generally too much concerned about the problem of pollution of streams after the waters have passed below their particular area. They want others, particularly up-stream, to clean up, but they don't want to do the job themselves. It is therefore not politically popular nor expedient to advocate sewage treatment. First they want to wait until costs are lower, then they want to wait until they are in better financial condition. They are greatly concerned by the very large amounts that treatment facilities will cost, but they fail to realize how negligible the cost is in relation to the cost of water before it is polluted.

The point we must get over to industry—and they are beginning to recognize it—is that the cost of producing a product must include the cost of treating wastes so that the water they use can thereafter be useful to others. We must convince our city dwellers also that the cost of the clean water they require must not only cover the cost of making it available, but also the cost of cleaning it so that it may be useful thereafter and not just a health menace. Most cities own their own water facilities and charge for the cost of supplying them. Generally an increase of about 50 per cent in the charge for water for a period of about twenty years would enable them to liquidate the entire cost of sewage treatment in that time. It is my opinion that anyone who can afford the luxury of running water in his home, can afford, and should be required to pay the cost of sewage treatment. Common decency should ultimately prevail.

This is a problem which should be solved by each individual state, and the recently enacted Federal law recognized that fact. There are, however,

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An *Angle* On The Worm

By C. H. SHAFFER
District Game Technician

IN THE SPRINGTIME our fancies lightly turn to thoughts of fishing and when fishing fever breaks out in earnest, the common earthworm becomes newly important to many anglers in Virginia. It is not our purpose here to either praise or bury the earthworm on its relative merits of attracting, aiding and abetting in the capture of fish, nor to enter into the controversial issue of live bait versus artificial lures. Rather, it is our object here to examine the earthworm objectively in an effort to clarify the role of this simple organism in the scheme of the world's program and show how it directly or indirectly affects all our lives.

Fishing worms are known to us by a variety of nomenclature. They might be called any of the following names: angleworms, night crawlers, earthworms, fishworms, rain worms or dew worms. A golfer who misses an important putt on the 18th green because his ball was deflected by the "castings" of an earthworm might conceivably introduce some new names to the list. The same applies to the purist fishermen who see worm fishermen snatching many of the stocked trout from streams on opening day. The biologist calls this long, flesh-colored, earth dwelling animal *Lumbricus terrestris.*

Most of us are familiar with the earthworm, but few have ever stopped to realize what a remarkable organism it really is. Imagine if you can, how impossible it would be for us to live without legs, arms, eyes, ears, teeth, face or voice. The earthworm lacks all these features, yet is capable of reducing a mountain into a molehill. Nature has endowed this animal with many compensating characteristics. Its long, reddish body is divided into numerous segments, the contraction and expansion of which permit the organism to crawl or burrow into the soil. The underside of the earthworm is equipped with short bristles which also aid in the process of motivation. Lacking eyes, ears and nose though they be, earthworms appear to be sensitive to certain external stimuli. They show reaction to bright lights, air currents and vibrations or disturbances in the ground. Their sensatory system is located in cells near the body surface; a moist, rather slimy cuticle helps protect these essential sensory cells. Their digestive tract extends the entire length of the body and is rather complete. Every earthworm is both male and female and is capable of laying eggs to produce its own kind. However, it is incapable of self-fertilization.

Living in the soil, the earthworm has to depend on what is present for a source of livelihood. This species dines principally on soil itself, leaves and grass or any organic material. It is well equipped to ingest and digest such rough fare with a simple, suction-like mouth and a muscular gizzard, aided by certain digestive secretions. It is during the quest for food in its earthy environment that the earthworm performs the miraculous deeds which are so important to all of us.

The results of the labor of one solitary earthworm might never be noticed, but it is through the cooperative efforts of large numbers of the organism that literally tons of soil are moved and mixed annually. Charles Darwin estimated that as many as 50,000 earthworms may live in an acre of ground, and since each worm personally ejects around a pound of castings annually, an estimated twenty to thirty tons of soil can conceivably be moved yearly on an acre of good soil.

Those of us who work with the soil fully realize the importance of plowing, discing and cultivating in the preparation of soil for proper usage in the growing of crops and foodstuffs. We recognize the value of mixing the ingredients of the soil in the obtainment of maximum fertility. We seldom pause to realize that the earthworm is constantly at work for us mixing organic materials with mineral soil and casting their results upon the earth's surface. Their numberless burrows aid materially in aerating and draining the soil. In short, this seemingly insignificant animal is a highly valuable

Photo by Kesteloo

Earthworms are constantly at work mixing, enriching, aerating, and turning over the soil.

Photo by Kesteloo

Worms collected in the spring and kept in rich soil pay off on summer fishing trips.

agent in keeping our soil in good physical and chemical condition for plant growth.

"Garden hackle" fishermen and farmers are not alone in recognizing the worth of the earthworm. Certain birds and animals find this organism to be an important item in their diets. Song birds, particularly the robin, domestic poultry and certain upland game birds, feed on earthworms during seasons when they are abundant. Moles, shrews and snakes likewise depend on these earth dwellers for a portion of their food supply.

Several fallacious beliefs exist concerning the habits of the earthworm and it is surprising how widely they are accepted in Virginia. During the summer and early fall earthworms are extremely difficult to find, even in locations where they were abundant during the spring months. They cannot be had for love or money. Coincidentally, fireflies appear in great numbers during the summer and fall evenings. The absence of the earthworms and the prevalence of fireflies leads many people to believe that one is the result of the other. They unhesitatingly insist that the once-prevalent earthworms have turned into fireflies. Of course, this phenomenon does not occur but it is easily realized why many people tend to arrive at such a conclusion. Actually, the disappearance of eagerly-sought earthworms throughout the fishing seasons might be explained in a simple and probable manner. The species requires an abundance of moisture, and it would, therefore, seem natural that during the normally dry summer and autumn months they become less active and burrow so deep that they all but become unavailable to man and fish.

Often during the springtime after a heavy cloudburst, literally thousands of angleworms can be found in fields and even on sidewalks and streets. It did not rain worms, as some might suspect, but rather the water had filled the earthworm burrows and forced the animals to the surface.

Due to the greatly increased interest in fishing, and at the same time, the scarcity of earthworms during the height of the fishing season, many enterprising individuals are beginning to raise worms either for sale or for their own personal benefit.

It is a simple matter to collect quantities of these organisms during the lush periods of the springtime, and if properly cared for, they will be available whenever needed, regardless of the season or weather. A container such as an oil barrel, wash tub or tight wooden box can be utilized. Good soil, rich in humus, should be placed in the container and a layer of sod over the top is helpful in keeping the soil moist. It is highly important that a watertight lid of some variety be placed over the container, for otherwise there is a possibility that the worms will drown after a hard rain.

Naturally the worms will react more favorably to captivity if they are fed—they will be larger, more vigorous and more prolific. Decomposed leaves can be introduced along with corn meal, coffee grounds or ground beef suet. Some of the worm raising experts recommend sugar in some cheap form. All in all, raising worms in a container is an interesting hobby and will pay dividends.

It is apparent that the earthworm is a vital link in nature's chain. It is a cooperative, contributing member of the animal world. In point of fact, it was Darwin's conclusion that "It may be doubted whether there are many other animals which have played so important a part in the history of the world as have these lowly organized creatures."

SANDY LEVEL—Friend to Soil and Wildlife

By KARL E. GRAETZ*

The plants grown at Sandy Level mean a new future for the wildlife of Virginia.

Photos by Kesteloo

LET'S TURN BACK the pages of history to the day when Stephen Foster composed the immortal song "Suwannee River." A beautiful tune about a beautiful river—it took the nation by storm. Literally the whole country was playing it, and while they fiddled most of the other rivers of the southeast were running red and muddy with America's irreplaceable top soil.

The Pigg River in Pittsylvania County, Virginia, would hardly capture the romantic fancy of a Foster. However, along its banks are 201 acres dedicated, one might say, to the beautification of all our rivers through the process of halting the erosion of soil. That 201 acre block is of course the Sandy Level Nursery of the Soil Conservation Service located near Gretna, Virginia.

In studying the science of soil and water conservation it was soon found that the most effective controls were nature's own remedies—to cover and protect the soil with plant life. Thus, with the advent of the Soil Conservation Service came the simultaneous demand for vast quantities of seed and plants to fit into this scheme of agriculture. To produce this material, the regional office of the Soil Conservation Service (headquarters in Spartanburg, South Carolina) established a nursery in each of the seven southeastern states. The Sandy Level Nursery is the only one of its kind in the State of Virginia. Seeds and plants produced here, as well as the production from the other nurseries, are allotted throughout the region where the need is greatest. The production is distributed to farmers without cost through their Soil Conservation Districts.

The Sandy Level Nursery, under the management of W. H. Mann, has an annual capacity of approximately 4,000,000 seedlings and 20,000 pounds of grass and legume seed. This article will attempt to deal only with those plants in our regular production which are of value to wildlife. All species in production must measure up to certain requirements: they must help conserve the soil, they must be useful, and lastly they must succeed. As far as this "use" factor is concerned the emphasis is placed on grasses and legumes to fit into the agronomic farm program. By happy coincidence some of this group are also valuable to wildlife. Kentucky-31, the tall meadow fescue introduced by the Soil Conservation Service, is an example of this. Its tremendous root system locks the soil in place. Its luxuriant growth stays green far into the winter giving farmers a longer grazing period. After its introduction as a pasture plant numerous incidents were reported where deer, turkeys, geese and muskrats were also finding it palatable.

Another striking example of inter-use by domestic animals and wildlife was found in lespedeza sericea and specifically the new "Arlington" strain

*The author is Observational Agronomist, Soil Conservation Service Nursery, Gretna, Virginia.

introduced by the Soil Conservation Service. Arlington sericea, a deep rooted perennial, is a poor land plant adapted to healing areas already outraged by erosion. If cut at the proper time it produces two large hay crops which stand close to alfalfa in nutrient value. Since it is a perennial with a dense growth it is a perfect cover for quail, rabbits, etc. The seed are not on the quail's preferred list; however, they will take it when other foods are scarce.

There are many other crops grown at this nursery which fall into the same category. Ladino clover, newer and larger strains of Korean lespedeza, broadleaf hairy pea, and reseeding crimson clover are some which furnish winter food for wildlife as they protect and enrich the soil and furnish winter pasture.

The State Game Commission was quick to realize the wildlife potentialities of these agronomic crops. Wildlife cover-strips of sericea have been successful. Many trial plantings of Kentucky-31 and ladino clover have been made in the various State forests. Deer and turkeys especially have already "fallen to" on these plantings with eager delight. Mr. C. H. Shaffer, District Game Technician, has already reported in the January issue of *Virginia Wildlife* on the successful wildlife utilization of both of these crops.

The Soil Conservation Service also has a very direct approach to the conservation of wildlife. When a conservation farm plan is made each part and parcel of land on that farm is rated as to its production capabilities. It is merely a common sense program of putting all the land to some good use. The richer and more level land is set aside for the intensive cultivation of cash crops. On almost every farm there are some areas which are unsuitable for cultivation because of soil conditions, slope, or accessibility. These areas may best be used for wildlife plantings. The Soil Conservation Service also enters the biological picture in other ways. The construction of fish ponds, management of marshes, and the use of trees and shrubs for farm fencing are a few of the other regular soil conservation activities in which wildlife problems are inextricably involved. It is little wonder then that many of the plants raised at the Sandy Level Nursery have as their "use factor" the conservation of wildlife.

Lespedeza bicolor, a plant "discovered" some twelve years ago, turned out to be one of the best quail foods. Verne E. Davison, Regional Biologist of the Soil Conservation Service, was largely responsible for its early introduction and subsequent popular use in the wildlife field. It is a perennial which when once established will furnish a dependable source of food for quail without replanting each year. The flowers attract bees, and its bark is eaten by rabbits. While doing all this good above ground its branching root system stabilizes the soil and enriches it with nitrogen. Unfortunately it reaches its northern range limit in Virginia. In areas where the frost date in the fall is before October 15, bicolor does not furnish an annual and dependable food supply for quail. Obviously there was a great need for an earlier maturing shrub lespedeza to take the place of bicolor in the more northern areas.

Technicians have long been on the look out for an earlier strain. In 1949, L. B. Scott, Chief, Regional Nursery Division, Soil Conservation Service,

Plots of ladino clover are checked carefully for desirable characteristics. The best types are reproduced.

A new early lespedeza developed at Sandy Level promises aid to quail in colder areas.

Separating and handling the various types of seeds at the nursery is a specialized job.

Plants as well as seeds are distributed from Sandy Level. Thousands are annually planted in Virginia.

directed the Sandy Level Nursery to embark upon an all out effort to run down this elusive plant. As a first step, all the most promising species and varieties of bush lespedeza were assembled here. These included Lespedeza japonica, formosa, robusta, intermedia and bicolor (natob). A large scale program of plant selection was anticipated. It was apparent that the search could be speeded up if we could find additional land to greatly increase the number of plants from which to select. We also considered it desirable to have trial plantings of new varieties in the colder areas of the state where maturing dates could be double checked.

C. F. Phelps, Chief of the Commission's Game Division, was in full accord with this work. To aid in the search he offered the facilities of the State game management farm at Orange, Virginia which is under the supervision of W. P. Blackwell, District Game Technician. In addition, Dr. Henry Mosby, Leader of the Wildlife Research Unit at Virginia Polytechnic Institute, and Professor A. B. Massey, of the Botany Department, offered to collaborate by planting observational plots in Blacksburg, Virginia.

Under the cooperative agreements 87,000 seedlings of 15 early seeding selections have been lined out in contour strips at the Orange game management farm. The Blacksburg station has for the past three years received plants of 36 selections. These are planted in observational rows which exactly duplicate our trial plantings at this nursery.

Our course of action lies in selecting parent plants with outstanding earliness. We also choose carefully for high seed yield, vigor and seed persistency in that order. Seed from these individuals are planted to produce seedlings from which we select again. This process repeated over and over is a slow one. However, we have made substantial gains in the past three years. We now have a Lespedeza intermedia which regularly matures seed three to four weeks earlier than bicolor. This is early enough to elude the first fall frosts in almost all northern or mountain areas in Virginia. We have found that quail take this intermedia seed as readily as bicolor. It is not as vigorous nor does it produce as much seed per acre as bicolor. We are selecting now to improve these qualities.

At present Lespedeza intermedia will at least provide quail food in those problem areas unsuitable for bicolor. For this reason the nursery undertook a large scale seeding of this variety in the summer of 1950. A total of 1,650,000 plants were produced. The State Game Commission has received 500,000 plants of intermedia. They will distribute them through the local Soil Conservation Districts mainly in areas west of the Blue Ridge.

A two-acre planting of this same stock will be made at the Orange game management farm. This will provide a state owned seed source for future years. In addition all the newest selections which are being sent annually from this nursery to the Orange farm are planted there as seed blocks. Thus the Commission has a current source of our top flight material. When new and better selections turn up they will be in a position to increase the seed without delay.

Speaking of game food plants we must at least mention our production of pokeberry. The new found use for this plant is a case of "If you can't

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VIRGINIA WILDLIFE

CONSERVATIONGRAM

Late Wildlife News . . . At A Glance

COMMISSION ANNOUNCES FISHING SEASONS FOR 1951: At the March 23 meeting of the Commission it was decided to keep the opening date of the trout season at April 20 this year instead of changing it to a later date, as had been considered. The season will open at 12:00 o'clock noon on that date, and will close one hour after sunset on September 15. Creel limit this year has been set at eight trout. Bass fishing will open earlier this season, starting on June 1 instead of June 20, and continuing until December 31, west of the Blue Ridge and until March 15 east of the mountains.

NEW BIRD BOOKLET TO BE PRINTED SHORTLY: Bids are now being received for printing the Commission's new bird booklet "Birdlife of Virginia." The new booklet, intended as a student's introduction to bird study and as a layman's guide to the birds of the state, has been over a year in preparation, and has been reviewed by some of the nation's leading authorities.

A four-color cover and interior color plates are among the features of the booklet. An initial printing of 15,000 has been decided upon, with 5,000 earmarked for distribution to Virginia schools and the rest offered for sale at 25 cents a copy at the Commission offices. Advance orders for the booklet are now being taken. Send orders by postal card to Commission of Game and Inland Fisheries, Education Division, Box 1642, Richmond, Virginia.

COMMISSION PLANS TO INTENSIFY SAFETY CAMPAIGN: An increase in the number of hunting accidents during the 1950-51 season has been responsible for a decision of the Commission to intensify its safety hunting campaign during the coming year.

Twelve thousand safety hunting posters have been ordered for distribution before the next hunting season, as an addition to the 6,000 posters already in the Commission's possession. Each license buyer next season will again be given a copy of the Ten Commandments of Safety with Firearms.

FISHERIES SURVEY STARTED ON BACK BAY: Dr. Dean A. Rosebery, Assistant Chief of the Fish Division, has started a fisheries survey of Back Bay, Virginia's famous largemouth bass water.

Dr. Rosebery is now spending time with the commercial fishermen of the area observing the methods of work and the types of fish caught in the hauls.

Most of the early work done will be concentrated on the commercial fisheries catches to observe the habits of the various species in the Bay in an attempt to determine the relationship of the rough fish to the game fish.

Knowledge obtained on the survey will be used in the future by fisheries biologists to obtain a more effective control of the rough fish and to provide more effective management for the game species.

WILDLIFE RESEARCH UNIT TO WORK WITH RACCOONS: James E. Thornton, Assistant Chief of the Game Division, has announced that the division and the V.P.I. Wildlife Research Unit plan a research project to determine the survival rate of restocked raccoons in Southwestern Virginia.

The animals have become scarce in the mountainous areas of the state, and during the past few years raccoons from the Tidewater section have been shipped to the western counties for restocking. The new project will seek to determine the value and practicality of the program.

JUDGING STARTED ON 1950-51 ESSAY CONTEST: Game Commission personnel are now at work on the preliminary judging of the entries in the 1950-51 Wildlife Essay Contest. The vast number of essays from all over the state has entailed a tremendous amount of work at Commission headquarters, but final judging should get under way shortly. The date on which the prize winners will receive their awards will be announced later. Final winners will be picked by a select group of judges appointed from the Virginia Division of the Izaak Walton League and the Commission, joint sponsors of the annual contest.

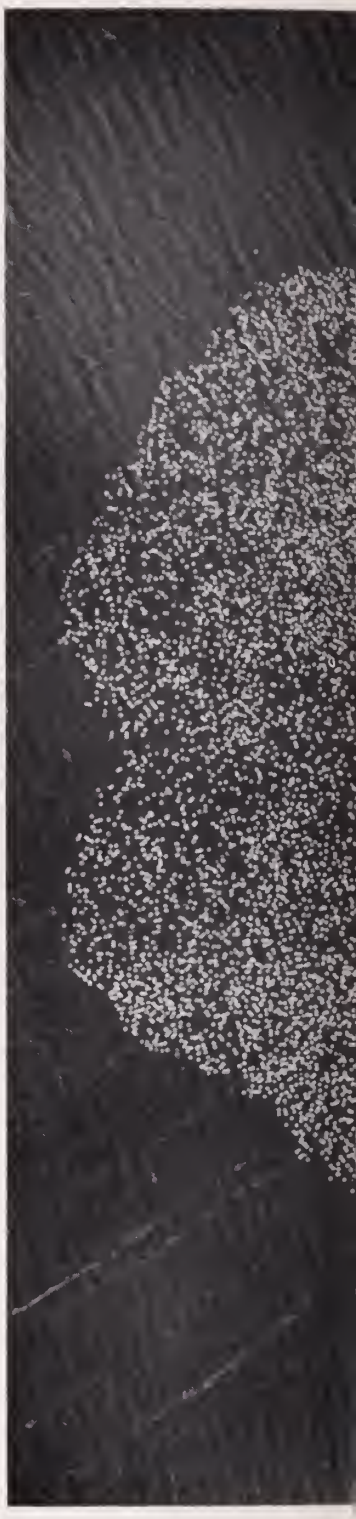
Picture of the Year

This dramatic picture of wintering snow geese in the Back Bay-Currituck Sound area is the most amazing photograph to come to "Virginia Wildlife" in years.

Made by the U. S. Naval Air Corps in cooperation with the U. S. Fish and Wildlife Service, the picture was taken from 2,000 feet with a K-17 aerial mapping camera at about 10:00 A. M. on January 17. A previous attempt on January 15 had been unsuccessful.

Back Bay National Wildlife Manager Jack E. Perkins and United States Game Management Agent Earnest Atkinson accompanied the Navy fliers on the flight. The entire Back Bay-Currituck area from Cape Henry to below Pea Island was flown to be sure that no birds would be missed. Fortunately all the birds were found to be concentrated in this one large raft.

Can you guess how many snow geese there are in this picture? The Fish and Wildlife Service had to have as accurate a count as possible, so the picture was blown up to a 20 by 24 inch enlargement, divided into half-inch squares, and the geese in each square were counted. The Fish and Wildlife Service says that the total count is accurate within a few birds. Why don't you make a guess as to the number and then turn to page 22 to find out how close you came to the answer?



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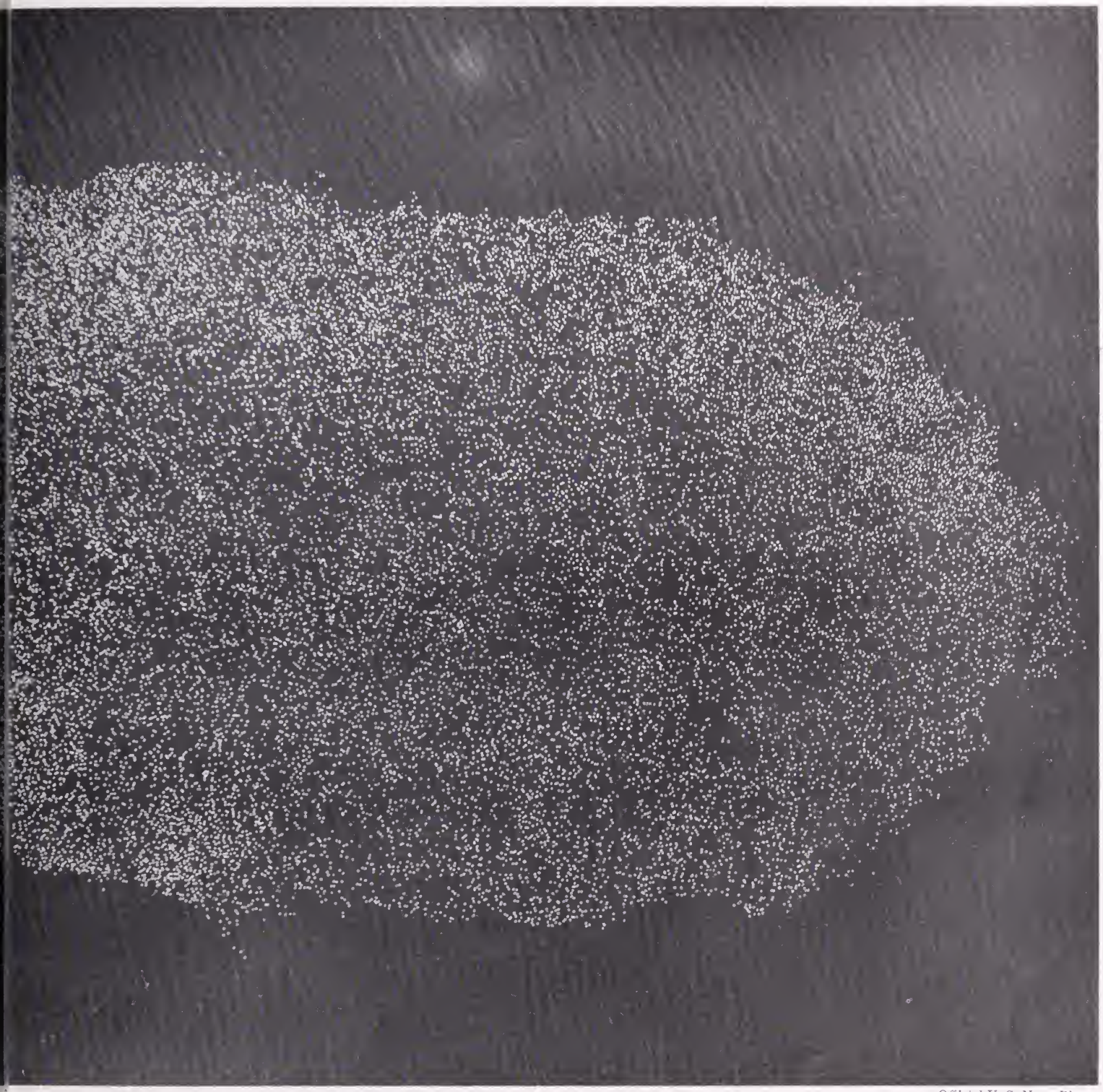


Official U. S. Navy Photo.

OF SNOW GEESE WINTER ON THE VIRGINIA-NORTH CAROLINA COAST

most beautiful of waterfowl, the snow goose at one time seemed doomed to extinction through Placed under the protection of a closed season, they have started a comeback that may some legitimate quarry once again for the wildfowl gunners.

above probably represents more than half of the snow geese wintering on the Atlantic Coast

Virginia Wildlife is especially grateful to the officers and men of the U. S. Naval Air Station, Norfolk, Virginia, who made this outstanding photograph, and who in conjunction with U. S. Game Management Agent Earnest Atkinson made it available to us for reproduction.

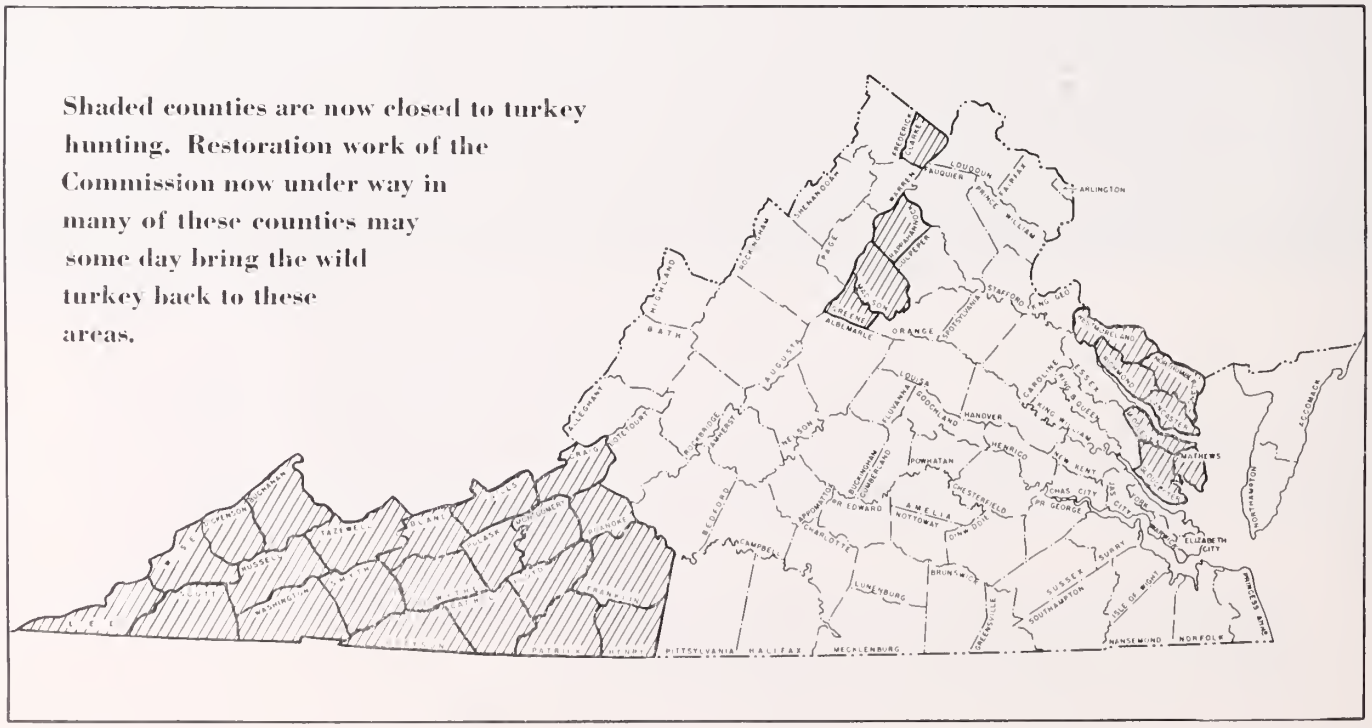
Restoring the Wild Turkey in the Old Dominion

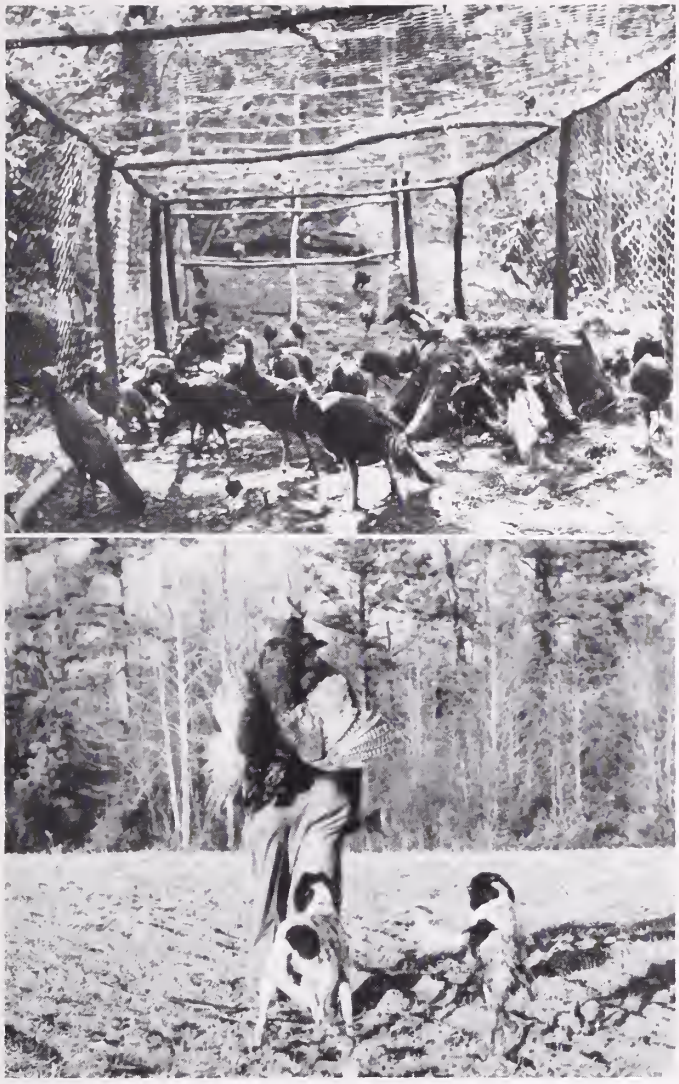
By CHARLES H. PEERY
District Game Technician

BECAUSE OF THE great sporting qualities of the wild turkey, the Virginia Commission of Game and Inland Fisheries is undertaking a restoration program for this splendid game bird in many of the mountainous counties of the State. The wild turkey was common in Virginia at the beginning of the twentieth century and it was valued very highly as a game bird. The records of the "Burke's Garden Hunting Club," which was active from 1889 to 1906 in the area known at Burke's Garden and Poor Valley of Bland and Tazewell Counties, place a good deal of emphasis on the wild turkey as a game bird. In the minutes of their hunting trips, they valued each species of game with a certain number of points. Bear was considered to be worth one hundred points while deer ranked second with fifty points, and then came the wild turkey at thirty points. The range of point values went on down to the rabbit which was considered to be worth only one point.

Modern trends in civilization, the uncontrolled hunting of past years, and the great damage to wild turkey habitat by timber industries and forest fires have reduced the numbers of wild turkeys from their former abundance in Virginia to a very small remnant in some sections or to extinction in other sections. The Commission has had to rely largely upon the public hunting grounds of the State in its restoration program for wild turkey. In a few instances, such programs are in progress on private lands through the cooperation of interested sportsmens' groups and individuals.

Game management is different from farming in that the farmer can use time-proved methods of farming, whereas, in many cases, the game manager must improvise methods as he goes. To produce a good crop of corn for a particular location, the farmer must use the best seed available. In comparison to the farmer's methods, native wild turkeys should be used in our restocking program. This would be the most logical method if a surplus of wild turkeys existed within the State. We do not have such a supply, therefore the Commission must rely upon the next best thing, captivity-reared wild turkeys from our game farm.





Photos by Peery and Shomon

Top: Turkeys are held in conditioning pens before they are released on their own.

Bottom: Virginia's long-range restocking program may some day make turkey hunting possible in most counties.

The Virginia Game Commission is producing wild turkeys, at its game farm at Cumberland, Virginia, which have all the qualities and appearances of the native wild turkey of Virginia. The only exception is that they are being raised through artificial incubation and in captivity. Wing-clipped turkey hens are placed in open one-acre pens on the Cumberland State Forest where native wild gobblers are present. During the spring mating season these gobblers enter these open-top pens and mate with the hens. The fertile eggs are collected by attendants at the game farm and placed in electric incubators. The result produces wild turkey poults. When these young turkeys reach the age of about fourteen weeks, they are banded and shipped by rail or auto to their destination.

Methods in game management are sometimes improvised during the progress of a project. In the early stages of the wild turkey restoration program in Virginia, the turkeys were released directly to the wild habitat from the rearing pens at the game farm. This method was later found to be costly due to the losses which occurred among the weakened birds. It is obvious that after a three hundred mile train ride, in some cases, these normally shy birds would be hungry, thirsty, and in a cramped condition. In an effort to reduce shipping losses and revive the physical condition as well as the spirit of the bird, the idea was conceived of building "conditioning pens" where the turkeys could be placed for a sufficient period of time to overcome the hardships of travel and yet have ample protection. These pens are now constructed to hold thirty to fifty birds at a time, and are ten feet wide, five feet high, and vary in length to fit the locality. They are covered with two inch chicken wire to make them predator proof. Pens are so situated as to have an ample supply of fresh water, and in a locality where they could easily be managed by the local game manager.

Initially, the turkeys to be released spend seven to ten days in the conditioning pen, depending mostly upon weather conditions. It was found that very cold, damp or rainy days and nights were exceptionally fatal to turkeys if they became wet. Because of this, one section of each conditioning pen was covered with some convenient material which would turn water. As the turkey's feathers become more water-repellent, after two or three days, they are not as subject to exposure. As a general rule, turkeys are ready for shipment from the game farm in the latter part of August, and at this time of the season the weather conditions are not too severe.

Following the time limit in the conditioning pen, the young turkeys are released during early morning. During most of the first day, the game manager makes it a point to follow the turkeys as closely as possible so that when roosting time comes in late afternoon he can scare the turkeys high into trees for roosting. After two nights of this training they do not have to be "told" to roost high again. This practice seems time consuming and unnecessary, but it has paid off in reducing losses from predation during the first two nights.

Within the first week following their liberation from the pens, the young turkeys will often break up into three flocks, and eventually into groups of about five birds each. For several days they will return to the conditioning pen in search of food

(*Continued on page 23*)

Virginia's Eastern Shore

By R. T. SPEERS
Associate Editor, Virginia Wildlife

VIRGINIANS HAVE a feeling of pride and affection for the broad blue waters of Chesapeake Bay. One of the world's largest bays, a source of much of Virginia's famous seafood, a body of water tied closely into the history of the state and of the country, it has only one fault in the opinion of many residents of the Old Dominion.

The fault, if you can call it that, lies in its 20 mile width that serves as a natural barrier to separate Northampton and Accomack, the State's two eastermost counties, from the rest of Virginia.

Lying at the tip of the long finger-like Del-Mar-Va peninsula, the two counties are cut off from a normal relationship with the main area of the state not only by the waters of the bay, but by the Maryland border to the north.

Because of their separation from their mainland brethren, the people of the Eastern Shore have developed a personality all of their own, but nevertheless, they are still Virginians and proud of their Virginian heritage.

The region is exceptionally fertile and blessed with a climate that gives the farmers of the area a growing season that extends for as much as 220 days. The early spring and the warm moisture laden breezes from the Bay and the ocean hasten the ripening of vegetable and fruit crops.

But to the sportsman the Eastern Shore has other attractions that far outweigh its fertile soil and mild climate. Here on this narrow strip of land is concentrated some of Virginia's best waterfowl shooting. Annually hundreds of thousands of waterfowl—ducks and geese of all kinds—pour down the Atlantic flyway migration route on their way to the wintering grounds in the south, and year after year Virginians meet them on the broad marshes and in the duck blinds of the Eastern Shore for shooting that is a high point on the sportsman's calendar.

The ducks and geese are not the only attraction that the marshes offer, however. Poling for rail shooting has been an old Virginia sport for as far back as anyone can remember. A day spent rail hunting on the marshes in the company of a real Eastern Shore guide is something to remember. On high tide, the sere brown marsh grass, weathered by the storms and the sun, extends only a short distance above the water. You sit in the front of the small pole boat with your shotgun handy across your knees, waiting for clappers to get up. Your guide stands behind you, thrusting the long pole against the bottom and propelling you onward through the growth. All about you for as far as the eye can see stretches the grass, a flat brown sea that gives no hint of its aquatic origin. Suddenly, a few feet beyond the boat there is a rustle, then a heavy disturbance in the grass, and a plump chicken-like bird flutters upward, flies feebly off for a short distance with its legs dangling, and then as though utterly tired out drops back into the marsh grass again.

If this is your first trip into the marshes and you've never seen a rail before, your shotgun is

likely to stay right on your lap when that first one goes up. They don't look much like a game bird and they don't fly much like a game bird either, but combined with the open miles of golden marshland, the bracing tang of the salt sea air, and the good companionship of an Eastern Shore guide, they become a sportsman's bird.

At the end of a day's hunting on the marshes, when a man's appetite extends clear down into the big toe region of his boots—that's when the rail really comes into his own. Cooked to a turn, he's an epicure's delight—a golden brown morsel that puts an accent on the word flavor.

Virginia's Eastern Shore game wardens have a tremendous expanse of territory to cover and a type of work that is unique to the rest of the state save perhaps in the Back Bay region south and east of Norfolk. In addition to the regular inland duties of a warden, such as enforcing the usual game laws relating to animals and birds, acting as dog law enforcement officer, working with the game technician to carry out the Commission's farm game restoration program, and numerous other duties,

Photo by J. J. Shomon

Surf casting along the beaches of the Eastern Shore's sea islands is an angler's dream come true!

Photo by Kesteloo

The hunting season for many Virginians starts with the fall rail season on the Eastern Shore marshes.

men must be accomplished and experienced in saltwater work. The Commission operates two 40 foot power cruisers along the coasts of the Eastern Shore, one in each county, and the two wardens who make up the crew of each boat must have a knowledge of seamanship that is second to none.

Hundreds of miles of marsh must be covered and thousands of licenses and blinds must be inspected during each hunting season. Market hunters and illegal duck traps must be watched for in order to protect the migrating waterfowl. Liaison must be established and maintained with the federal game warden in the area so that the best possible job can be done and so that there is no needless duplication of effort.

The inland ponds of the Eastern Shore hold excellent bass and bluegill fishing for the sportsman who has an urge to wet a line in pursuit of these species. Most of the residents of the two counties don't bother, however. It's not that they don't enjoy fishing—there are probably no more avid fishermen anywhere—but as one resident put it, "we get so used to catching a boatful of the big fellows out there in the salt water, that we just sort of lose our respect for a fresh water limit of four and five pound bass!" There's plenty of justification for his statement too. The Eastern Shore of Virginia is a salt water angler's paradise!

The annual run of red drum in the spring is eagerly looked forward to by the fishermen and 40 to 60 pound fish are regularly taken. Several salt water records have been set in the waters off the Eastern Shore. In 1938, a 102 pound cobia was caught off Cape Charles and in 1949, a record for channel bass on rod-and-reel was established when an 83 pounder was boated off the same port.

Aside from the big fish however, the tackle busters and the record smashers, the coastal fishing offers top sport in flounder fishing, and in catching the sea trout, "squeteague" or weakfish as he is now officially designated by the ichthyologists. As pretty a fish as any that swims, the "trout" obviously gets his name from the irridescent lavender-purple band that he carries along each side—and which makes him resemble the rainbow trout of the fresh waters. He's a fighter too, and on light tackle there's more fun and sport in him than is possible to imagine. The flounder is fun on a light rod also, but he's a fighter of a different sort, turning his flat side against the pull so that hauling him in is a difficult task.

Another aspect of the salt water fishing on the Eastern Shore is the delightful uncertainty as to what may take your lure next. With many differ-

(*Continued on page 23*)

FAMOUS RIVERS OF VIRGINIA
(Seventh in a series of eighteen)

The York River

By MALCOLM H. HARRIS, M.D.

THE YORK RIVER IS a historian's river and a sportsman's river. In the early days it was called the Pamaunkee, or Pamunkey, by the Indians. The English named it the Charles, and in 1634 changed the name of the river and shire to York, in honor of Charles the First, then Duke of York. The river is formed by the confluence of the Pamunkey and Mattaponi at West Point, and it ebbs and flows some 30 miles in a southeasterly direction to emerge into the broad waters of Chesapeake Bay. It follows a straight course from West Point to Yorktown between high banks, and from Yorktown to Chesapeake Bay it bears eastward. It has an average width of about a mile and half, varying with the shore lines, and reaches its narrowest point at Yorktown, where it also reaches its greatest depth. In the opinion of old Navy men it is one of the finest, safest, and most commodious inland harbors in the world. The navies of the world could all be anchored here, and there would still be room for many more ships.

From the earliest times the York River was an important artery of commerce. Captain John Smith with a party of 15 men came up the York River in 1608 in search of food. They visited the Indian Chief Powhatan at his chief village, Werowicomico, which was located in Gloucester behind Purtan Bay. It was at Werowicomico that Smith's life had been saved by the young Indian Princess Pocahontas the year before. Smith's party went up the York to West Point, the seat of the wily Indian Chief Opechancanough. The place was called Cinquotek by the Indians.

After a hair-raising episode, the Indians brought corn which saved the hungry Englishmen from starvation. It may be truthfully said that the first permanent English settlement was on the James, but the permanency was due to the fruits of the York.

After the departure of Captain John Smith, the colonists fell into many troubles with the Indians, resulting in depredations and retaliative destruction of the Indian towns. Werowicomico was burned by Sir Thomas Gates during his time as Governor.

The birth of a river. West Point lies between the Pamunkey (upper) and the Mattaponi (lower) where they join to form the York.

Aerial photo by Kesteloo

Photo by Kesteloo

A modern Virginian's duck blind shows beyond this restored British redoubt—a reminder of Yorktown.

Photo by Kesteloo

York River oysters have been a delicacy in the nation since the earliest days of the Old Dominion.

This ended the importance of that town, for Powhatan moved his seat to Orapax in New Kent.

Powhatan died in April, 1618. The villainous Opechancanough soon afterwards assumed the position of chief held by his brother. An English gentleman named Thomas Thorpe built an English house for the new chief, and fitted the door with a lock and key. The latter device interested Opechancanough so much that he spent a great deal of time turning the key. It was probably in this house that he plotted the second massacre, which was started on Good Friday, 1644. His plans were frustrated by the good offices of an Indian boy named Chanco who told of the scheme, and the colonists were saved from utter destruction, although many outlying settlers lost their lives. The old chief was captured by Sir William Berkeley, taken to the gaol at Jamestown, and there his guard is said to have murdered him.

The York River up to the year 1646 had been a boundary between the Indians and the English inhabitants. A treaty signed in that year opened up the north side of the river to English settlement, and in a short period after this the lands were taken up by new adventurers or persons who staked new patents for transporting persons to the colony. This rapid settlement led to the formations of Gloucester in 1654, New Kent in 1654, King and Queen in 1691, and King William in 1702. By this time, the Indians were resolved into the small reservations in the latter county, which had been called Pamunkey Neck.

The leading men settled along the rivers. Along the York, as on the others, they had their homes built on the high banks overlooking the river. On the upper side of the York were seated the Burwells, Pages, Smiths, Joneses, Andersons, Taliaferros, Robinsons, Roys and Dudleys, but few of the homes remain. Dudley's Ferry, Hockley, Bellevue, Purtan, and Carter's Creek remain of the many fine homes that formerly lined the York. Below the river, due to the precipitous contours, there were homes at Brickhouse, Mt. Folly, Queen's Creek and Riverview. Far down the river the West family was domiciled at Bellfield, where later the Digges family lived, and today at Yorktown the old homes of the Nelsons, Moores, and Digges and the old Custom House remain.

The rivers served as a means of transportation of heavy goods. Tobacco was rolled to the warehouses and then loaded on the boats for foreign ports. Warehouses on the upper side of the York were located at Tindal's Point, Cappahosic, Poropotanke, and Shepherd's in the mouth of the Mattaponi, and below this river at Brickhouse, Taskinask, and Yorktown. Ships of all designs and kinds came into the York River and took loads of tobacco, timber, shingles, and other produce beyond the seas.

The beauty of this historic river was one of the joys of the trip, in later days, from Richmond to Baltimore on the "Baltimore Boat." After a hot mid-summer day in Richmond, 45 minutes on the fast boat train would take you to West Point, where the boat sailed at six. Then a leisurely cruise down the York, with a cool river breeze and a fine evening meal at the captain's table, was a treat. The wide river with homes along the shore, sailing vessels, fishing craft, and a summertime evening added

up to a great experience. The boats, named for Richmond, Annapolis, and Yorktown, stopped at Claybank, Allmond's, Gloucester Point and Yorktown, and docked at seven in the morning in Baltimore.

Early writers of Virginia described the abundant supply of fish and fowl along the tidal rivers. The York has been renowned for its fishing. Beverley in his "History of Virginia" tells about the Indians spearing fish in the shallow waters along the York, and taking large catches of fish in their rude weirs or fish traps. He also says that although a poor shot he had brought down at one blast twenty waterfowl. At that time the York River abounded in all kinds of saltwater fish, including herring, shad, rock fish, spot, trout and sturgeon. George Washington recorded in his diary in 1771 that he fished for sturgeon in the York, but the sturgeon have long since disappeared from the river.

The present plans to remove the sewerage and industrial wastes from the river at West Point, aided by conservation programs in soil and timber and restrictions on commercial fishing, should in time restore the bounties of the river. There was never a finer fishing ground than that on the rocks by the old lighthouse. Many a river trout has been taken there on hand line. Rock fish, large and small, are caught around West Point. The shad still return each spring as soon as the water is warm enough, and numbers are caught in seines.

The York River oyster at one time was widely known. Oystering, in the early days, soon reached a degree of importance as an industry. There were oyster shucking plants at West Point, Claybank, Allmond's, Gloucester Point and Yorktown, and at many smaller places along the river. When an unfortunate typhoid outbreak took the life of a citizen of Chicago, who had eaten oysters from Long Island Sound, the whole business suffered and inspection by health authorities became routine. Additional costs, inspections, and regulations made the operation less profitable. Under the guidance of the Chesapeake Corporation at West Point an effort was made to grow oysters in a scientific manner. The demonstration was a success and the process is still in use, though no longer owned by the Chesapeake Corporation. The results were a tasty fat oyster of large size, grown in baskets suspended in the tide water. The most meticulous gourmand would be gratified to acquaint his palate with these luscious morsels.

In the near future the natural bounties of the York may once more be found on the tables of Americans as the work of restoration progresses. It is a dream that will justify the whole of our conservation program.

The pages of Virginia history have paralleled the York through three centuries. The Indian Wars, which ended with Bacon's Rebellion, crisscrossed the York and finally ended with General Bacon's burial in the York River to protect his body from desecration at the hands of Sir William Berkeley. Other victims were tried aboard a vessel in the York River, and one Thomas Hall, Clerk of New Kent County, was hanged.

A hundred years after this the Revolutionary Armies passed down the York, and Lord Cornwallis was forced to capitulate to the American and French forces under General Washington and LaFayette at Yorktown in October, 1781. Part of the British Navy stationed at Yorktown was burned, and the rest captured by the French fleet under Count de Grasse.

The first campaign of the War of 1861 began with a series of battles at Yorktown, Williamsburg, and Brickhouse Landing. The Confederates fortified West Point and General Lee inspected the fortifications, which were erected on the ruins of Rochambeau's earthworks of 1781. Later the Federals under General Franklin landed at West Point and fortified the peninsula. These fortifications are still to be seen.

During the first World War, the Atlantic Fleet was anchored at Yorktown, safe from prowling German subs, and the Naval Mine Depot and Navy Supply Station at Cheatham Annex rendered signal service to the country during World War II.

In the coming years, when the peace for which we now struggle is finally achieved and life resumes its usual regularity, the York River with all of its natural beauty and charm will afford another generation the bounties of nature which it has produced for man down through the centuries. The return of fish and fowl under the conservation of wildlife programs will bear fruit of increasing quantities.

Already the ducks and geese are increasing in numbers under the planned program of conservation. Today there are rafts of ducks on the York River, where a few years ago there were but twos and threes. The protection of these natural resources is a *must* from now on if our way of life is to survive.

The York River of the future will be as fine as we of today see fit to make it.

HOW MANY SNOW GEESE?
(answer to question on page 15)
25,436 birds.

WILD TURKEY

(*Continued from page* 17)

which we supply on the outside of the pen. Within two weeks they are on their own.

Wild turkeys may range as much as one mile or more in one day in search of food, but should they find a locality of their liking, they will stay by it more closely. Some of the liberated birds will wander to nearby farms and feed in the adjacent corn fields or wheat fields. In some sections of the State, the vastness of the forested areas and the lack of roads and trails makes it impossible for the game manager to hunt and follow the movements of the liberated turkeys. This situation brings out one of the key aspects of the project; public relations, where the Commission attempts to solicit the good will and cooperation of the local people and sportsmen. In most cases these people are proud of the fact that attempts are being made to bring the wild turkey back, and they eagerly seek out the game manager to report their observations.

Throughout the George Washington and Jefferson National Forests of Virginia, a planting program is being undertaken to produce supplemental food for turkeys, grouse, deer, rabbits and other small game species. Recently, information was gained through experiments on the Cumberland State Forest[1] on the use of a mixture of ladino clover and meadow fescue grass as a game food. Similar plantings of the above mixture as well as ladino with orchard grass as being used throughout the habitat improvement program on the two National Forests with good results in plant growth as well as utilization by the various forms of wildlife.

The wild turkey restoration project in Virginia is scheduled for a five year period. It was revised in 1948, following a slack period during the war.

Immediate results of this project cannot be seen at this time. Some release areas show promise while others are not as encouraging. There are many factors which bear heavily upon the success or failure of this project. For example, weather conditions play an important role in determining the nesting survival of the young poults. The available food supply at any particular season is very vital, and the cooperation of local citizens and sportmen determines the extent of poaching. Predation must be considered, yet must not be given all the blame. Predators, such as the fox, bobcat, great-horned owl, are part of the picture, but they are not as menacing as most people believe. It is hoped that within a few years more sections of Virginia will be open for turkey hunting as a result of the Commission's efforts to restock the wild turkey. This is the ultimate goal of the project.

1. Shaffer, C. H., "The Use of Ladino Clover In Wildlife Management" *Virginia Wildlife*, January, 1951.

EASTERN SHORE

(*Continued from page* 19)

ent species of fish around, a sportsman never knows just what to expect. Occasionally he may find an extra portion of excitement when a passing shark finds the bait to his liking!

The sea islands along the Atlantic side of the peninsula also offer much to the visitor. Assateague and Chincoteague, of course, are famous for their wild ponies, and the annual round-up and sale attract visitors from all over the United States. But ponies are not the only livestock of the coastal islands. South of Chincoteague, Paramore Island belongs to a wealthy New York family. A few goats and deer were released on the island several years ago to shift for themselves. Recently the goats, now greatly increased in numbers, were sold to a Texas firm and several hundred were removed from the island. The deer are still there and presumably have done as well as the goats. With the goat competition removed they ought to do even better from now on!

Assateague Island has one other claim to fame.[1] An important link in the chain of waterfowl refuges along the Atlantic coast, Chincoteague National Wildlife Refuge is located here. This refuge attracts thousands of ducks and geese to its food and cover each year.

For ornithologists, both amateur and professional, the Eastern Shore holds a special fascination. Along the sea islands and among the lonely pines of Kiptopeke, the huge nests of the bald eagle and of the osprey are fairly common. The winged fishermen themselves may be seen occasionally, swinging along the coasts or over the inland ponds in search of an unwary victim.

The coastal stretches and the many islands abound with shore birds of all descriptions, and gulls, gannets and terns are everywhere in countless numbers. On the islands and in remote areas of the shore, thousands of the coastal birds make the nesting season a Virginia affair.[2]

All in all, whether you see it from the viewpoint of the farmer or the tourist, the naturalist or the fisherman, or just the plain everyday variety of vacationist, Virginia's Eastern Shore is a fascinating place, and once you've seen it you'll want to go back again.

1. "Chincoteague, Strategic Virginia Refuge for American Waterfowl," *Virginia Wildlife, September, 1947.*
2. Collins, P. A. "Virginia's Island Hatcheries." *Virginia Wildlife, September, 1950.*

CLEAN WATERS

(*Continued from page 7*)

many areas wherein pollution is caused by more than one state, and it is rather difficult to obtain the cooperation of those involved. As a result there have been many compacts created by more than one state to meet such exigencies. They may—as in the Potomac River Commission—have only investigative and advisory authority, or as in the Ohio River Valley Compact, have a measure of enforcement authority.

The Ohio River Compact is a rather interesting one in that the condition of that river and its tributaries had become intolerable. Some states that drain therein were pursuing the problem vigorously while others were not. A condition had arisen wherein cities as well as industries were sadly deficient in usable waters. After many years of effort the existing Compact came into being with three commissioners each from Illinois, Indiana, New York, Pennsylvania, Ohio, Kentucky, West Virginia, and Virginia. We have the authority there to require abatement except that any order on any municipality or industry in any of those states is subject to veto by any two commissioners of the subject State. How effective this may be whenever it may be necessary to issue an order remains to be seen, but at least the Commission is causing a measure of cooperation among the several states, and its work from an investigative and advisory standpoint has begun to elicit hope of improvement.

One thing is evident to me after this experience. I am confident that the Virginia law prohibiting additional pollution has not driven industry from our state on a net basis. Some serious pollutors may have preferred to locate elsewhere, but a majority of the more desirable industries have been willing to locate or expand existing plants because they have a measure of protection from possible above-stream pollution.

We recognize now another obstacle in progress toward improvement by reason of the present armament program and the anticipated shortage of material and man power. It is our hope that those in authority may recognize the need for a high priority to apply on this type of work because the need for water conservation is largely a need for waste treatment, and more clean water is essential for an expansion of industry as well as for the health and recreation of the increasing number of people who must become industrial employees.

"Didn't have any luck today."

Some of you readers are quite familiar with the problems of serving the public where you are criticized for what you do and what you do not do. We who are administering pollution abatement laws know all about that. We are expected to do in a hurry what must take time, and we are expected to bear down hard on some but be very tolerant of those who complain. We can only rely upon our sense of judgment as to what is fair and reasonable in respect to the present and future generations on the one hand, and what can reasonably be done by the pollutors on the other hand.

In the solution of this problem, which is common to all of our states, we must first be sure we are heading in the right direction and then set our pace at a safe and reasonable gait.

SANDY LEVELS

(*Continued from page 12*)

whip 'em—join 'em." As long as we had to get along with this plant, Verne Davison figured we might as well find a use for it. The wild dove is very fond of these berries and seed, so, why not a perennial "food patch" of pokeberry for doves? Several trial plantings were made and closely observed. The doves immediately approved the whole idea. Some of the large plantation owners and sportsmen's clubs in South Carolina and Georgia are enthusiastic over the results. Several of the Soil Conservation Service Nurseries, including this one, have, therefore, been growing a limited number of pokeberry roots for planting in those states.

Now if you've come this far you certainly deserve a reward! Here is a moral to carve on your gunstock: "As goes the land so goes the wildlife." Soil and water conservation is wildlife conservation—the two are inseparable. Thus the working agreement between the State Game Commission and the Soil Conservation Service is a most natural combination. From the sportsman's point of view nothing but good can come from it.

Fluvanna Garden Club Active In Conservation

Word comes from Miss Mary G. Holman, of Bremo Bluff, Virginia, telling of the splendid work that the Fluvanna Garden Club is doing in wildlife conservation.

Recently the club has taken a very active interest in wildlife conservation affairs and has started on several worthwhile conservation projects. One project in particular appears to have great merit: that of providing all the local schools in the county with reliable literature on conservation.

The club contacted the Education Division of the Commission of Game and Inland Fisheries, and requested a suggested list of reference materials. Accordingly, the following books were recommended:

Large Was Our Bounty. 1948. Available from Department of Supervision and Curriculum Development, National Education Association, 1201 Sixteenth Street, N. W., Washington, D. C. pp. 216. Price $2.50.

Wild Mammals of Virginia. 1947. By Charles O. Handley, Jr., and Clyde P. Patton. Published by Commonwealth of Virginia, Commission of Game and Inland Fisheries, 7 No. Second Street, Richmond, Virginia. pp. 220. Price $2.00 prepaid.

Wildlife Conservation. 1948. By Ira N. Gabrielson. Published by the Macmillan Company, New York. pp. 250. Price $4.50.

The Land Renewed. 1946. By William R. Van Dersal and Edward H. Graham. Published by the Oxford University Press, New York, N. Y. pp. 110. Price $2.00.

Wildlife for America. 1949. By William Van Dersal and Edward H. Graham. Published by the Oxford University Press, New York, N. Y. Price $2.50.

A Conservation Handbook. 1949. By Samuel H. Ordway, Jr. Published by the Conservation Foundation, New York, N. Y. pp. 76. Price $1.00.

Latest word from the club is that these books are now being placed in the school library of each school in Fluvanna County. (Other garden clubs please note.)

Pulaski County Fish and Game Club Has New Officers

The Pulaski county Fish and Game Club has a new slate of officers for 1951. President Raymond Ratcliffe, vice-president Duval Seagle, and secretary-treasurer James Duke will be the new incumbents.

New directors of the organization include the club officers and Charles Powell, Graham Fizer, Howard Imboden, David Ratcliffe, Ed Tice, C. V. Jackson, William Tate, Joe Greer, and Joe Bones, former president of the club.

Accomplishments of the club during 1950 included increased habitat improvement work in the county in cooperation with the F.F.A. and the farmers of the area, working for passage of legislation to open Claytor Lake to all year fishing, and a feeding project for wild geese on the lake in an effort to increase the use of the area by waterfowl.

Youth Wildlife Contest Announced

The Fairfax Wildlife Club of Fairfax, Virginia, is sponsoring a conservation program known as the "Youth Wildlife Conservation Project." This project is being offered to all boys and girls in Fairfax County from the 5th grade through high school. The main objective is to supply food and cover for the diminishing game and to promote good game management practices. The club realizes that something must be done to halt the disappearance of game and to assist in increasing their numbers by supplying natural food and cover.

The club is offering prizes to the members that do an outstanding job on this project. The first prize will be a shotgun, the 2nd prize a .22 rifle and the 3rd prize a fishing rod and reel. All necessary seed and plants will be furnished to the members without any cost. The boy or girl must provide at least one-eighth acre for planting a feed patch and protect the patch from grazing, cultivation and fire and try to keep the food patch free from cats, dogs or any other predatory animal. The member should also try to determine the number of quail, turkeys, doves and rabbits that are attracted to the food patch and keep a record of his operations. For further information on the project you may contact Fred Brown, Game Warden, Route 3, Fairfax, Virginia or L. H. Blair, Assistant County Agent, Fairfax, Virginia.

ERRATUM

Through an error, Dr. Dean Rosebery, assistant chief of the Fish Division, was listed as chief of the division in the article on New River in the March issue. We are sorry that this mistake occurred.

for
Students
Teachers
Parents

BIRD OF THE MONTH

The Song Sparrow

The song sparrow in the more northern states deserves recognition along with the robin and the bluebird as a messenger of spring. He is a bright, perky little fellow, and his cheery song is a good sign that winter is almost over and spring is near at hand.

He is not confined to the northern states alone, however. Instead he is one of the most widely distributed of our birds, occurring from the Atlantic to the Pacific and from Alaska to Mexico. There is hardly a hedgerow or a thicket anywhere on the continent that does not have its share of little brown birds hopping busily about, hunting for food and keeping up a constant twitter.

The song sparrow differs from the English sparrow in that he is a true sparrow (which the English sparrow is not, being a member of the weaver birds) and in that he has a streaked brown breast with a large spot in the center where the brown streaks come together.

There are over 30 different races of song sparrows scattered over the country, ranging in size from six inches long to nine inches long, and in coloration from a dark, sooty brown to a pale washed-out tan, but even with these differences they are still song sparrows.

The male song sparrow is a fighter during the nesting season. He claims a certain portion of the land as his territory and he battles bitterly against any intruders. He takes no part in the nest building activities nor in the incubation or brooding of the young, but instead he spends most of his time perched in the top of a bush, lustily serenading the day and offering to fight any bird that is foolish enough to invade his area.

The song sparrow's nest is usually built on the ground, in a clump of grass or at the base of a bush.

WARDEN BILL'S PATROL

April is one of the nicest months of the year in Virginia. Everything has come alive into the beauty of spring, and a new growing year is well under way.

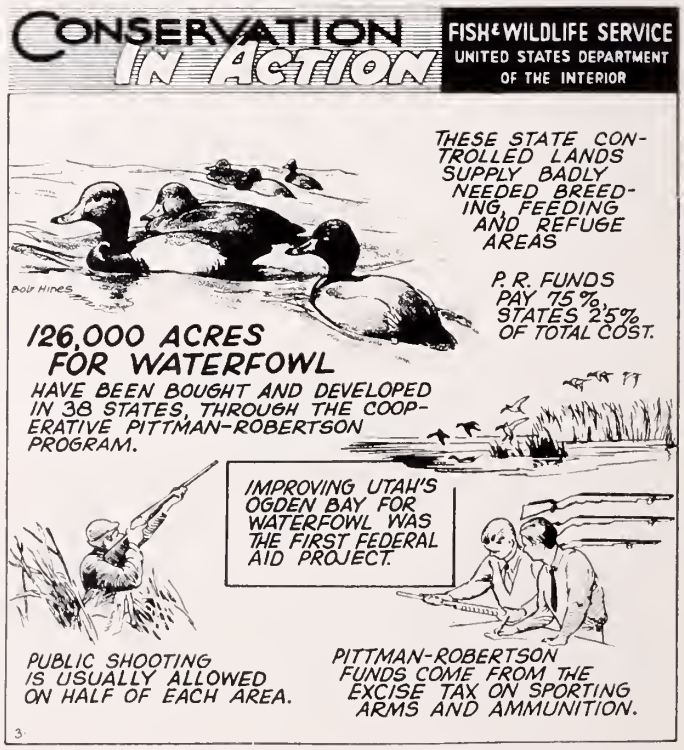
This is the time of year when the birds of Virginia swing well into the nesting season, and that's where a lot of you boys and girls can help Old Mother Nature along and have a lot of furn in the bargain.

Have you ever built any birdhouses? Well, it's not hard to do, and the rewards are well worth while, so why don't you give it a try? If you'll write to me here at Box 1642, Richmond, Virginia, I'll send you some information on how to build them.

The nice part about building a birdhouse is that you can put it up somewhere around the house where you can watch it from a window. Just think of how much enjoyment there would be in watching a pair of bluebirds take over as tenants in one of *your* houses. You could truthfully say you rented it for a song!

Just a note of caution: when you put your birdhouse up, remember that cats enjoy a bird for supper just as much as they do a mouse! Put your birdhouse up so that stray tabbies can't get to it. If you put the house up on a post, then put a metal cat guard shaped like an inverted funnel on the post below the house, so the cats can't climb up.

Another thing to do is to plan your bird house to fit the birds you desire to have as tenants. Different kinds of birds like different kinds of houses, so plan accordingly.

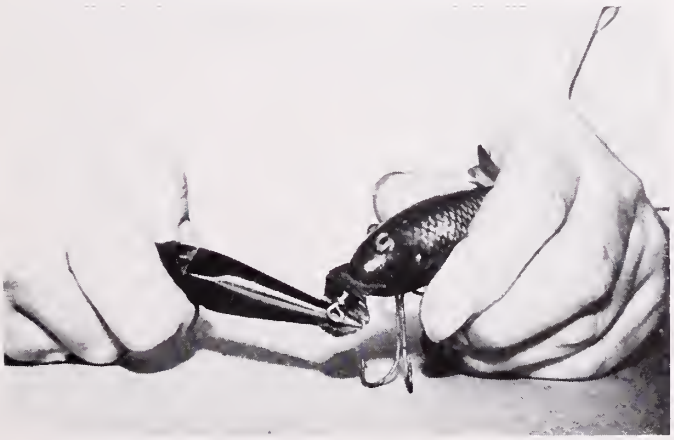


Get Your Tackle Ready!

a picture story by L. G. Kesteloo

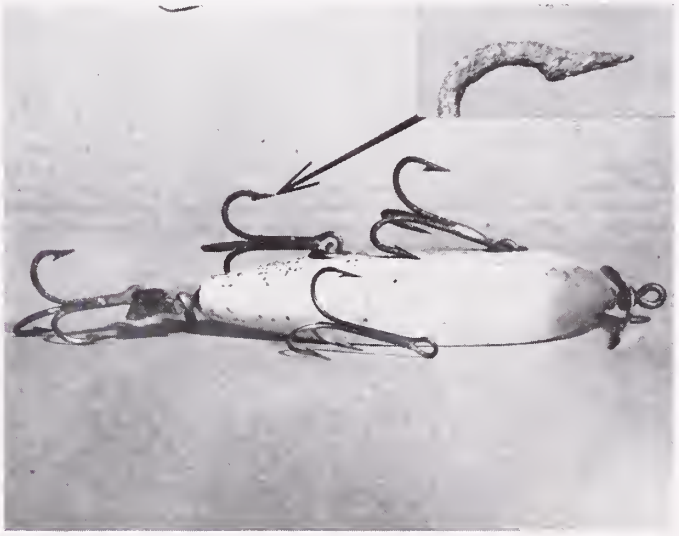
Sharpen all hooks to a needle point—it can make a big difference in setting the hook. A stone for this purpose costs very little at your sporting goods store.

Those tarnished spinners and spoons should be polished with metal polish or fine steel wool. A light application of clear lacquer will keep them bright.

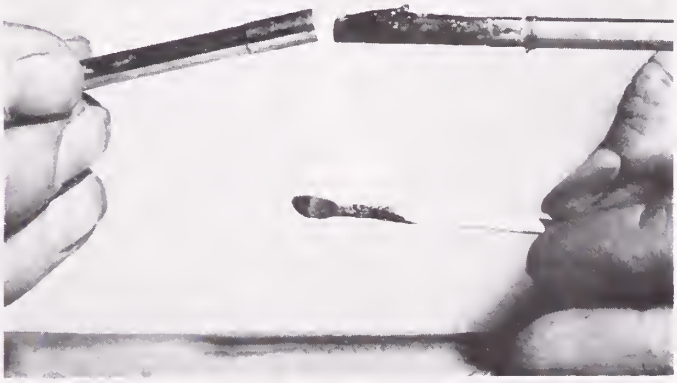


Check your plugs closely. Adjustment of the diving lip on a plug may be necessary for correct action.

Clean your reel thoroughly with gasoline or carbon tetrachloride. Dry and apply a *light* coating of oil or grease to the moving parts. When using, oil frequently.

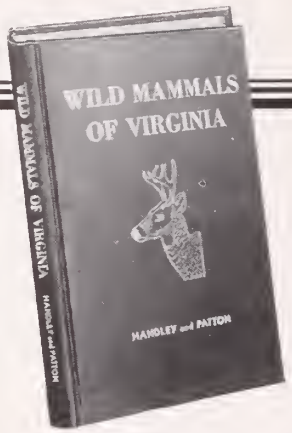


Defective or rusted hooks should be replaced. The insert in the picture above shows that the barb on this triple-hook has been destroyed.



Ferrules should be tight. Loose ones should be removed and reseated in new cement. Carry cement and matches in your tackle box for stream side emergencies.

These are just a few of the precautionary measures the wise fisherman will take to insure trouble free fishing on stream or pond. Everyone has known the disappointment of losing a good fish through failure of equipment at a crucial moment. Spend a little time in pre-season preparation this year, and you'll enjoy your trips to your favorite fishing waters!



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